UNITED STATES DISTRICT COURT
SOUTHERN DISTRICT OF TEXAS
HOUSTON DIVISION

SHELL GLOBAL SOLUTIONS (US) INC., and SHELL OIL COMPANY,	§	
	§	
Plaintiffs,	§	
	§	
v.	§	**CIVIL ACTION NO. 4:09-cv-3778**
	§	
RMS ENGINEERING, INC., TESORO CORPORATION, and TESORO REFINING AND MARKETING COMPANY,	§	
	§	
Defendants.	§	

MEMORANDUM AND ORDER

This is a patent infringement suit involving certain claims of U.S. Patent No. 6,221,318 (the "'318 Patent"). The Court issued a Memorandum and Order on March 21, 2011 in which it construed the disputed claim terms as a matter of law under *Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 976 (Fed. Cir. 1995), *aff'd*, 517 U.S. 370 (1996). Plaintiffs have filed a Motion for Reconsideration or in the Alternative Motion for Clarification of the Court's *Markman* Ruling (Doc. No. 96).

Upon considering the Motion, all responses thereto, and the applicable law, the Court finds that the Motion for Reconsideration or in the Alternative Motion for Clarification of the Court's *Markman* Ruling (Doc. No. 96) should be denied.

I. BACKGROUND

The '318 Patent relates to the fluid catalytic cracking process commonly used in oil refineries. Refineries convert heavy crude oil, which cannot be directly used, into lighter products such as gasoline and diesel. The conversion process is known as "fluid catalytic

cracking" ("FCC") and occurs within a "fluid catalytic cracking unit" (the "FCC Unit"). The FCC Unit comprises two vessels—a reactor and a regenerator. Within the reactor, two streams of material are introduced: (1) liquid hydrocarbon feedstock (i.e. the crude oil); and (2) catalyst material. The catalyst consists of fine particles that are "fluidized" (meaning that the particles act like a liquid when lifted up or diffused by gas). Inside the reactor, the hydrocarbon is "cracked"—so called because the large hydrocarbon molecules constituting the heavy fractions are broken up into smaller molecules—by the presence of heat and the active catalyst. As the cracking process occurs, the heavy carbonaceous material or "coke layer" deposits itself onto the catalyst, which is subsequently termed "spent catalyst." The lighter hydrocarbon molecules are separated from the spent catalyst via cyclones and siphoned off into a separate "product recovery system." The spent catalyst leaves the reactor via a "spent catalyst transfer line" and enters the regenerator through an "inlet conduit" and "spent catalyst distributor." The spent catalyst distributor is the subject of the '318 Patent. The spent catalyst distributor distributes the spent catalyst among heated air (which is fed into the regenerator via an "air distributor") so that the spent catalyst is once again "fluidized." The heated air burns the heavy carbon or coke layer off of the catalyst, thereby rendering the catalyst usable again. The regenerated catalyst leaves the regenerator by way of a "withdrawal well" or "hopper," which takes the regenerated catalyst back to the reactor. The FCC process repeats itself. The continuous flow of catalyst between the reactor and generator allows the continuous processing of crude oil.

Shell Global Solutions (US), Inc. and Shell Oil Company (collectively, "Plaintiffs" or "Shell") own the '318 Patent, which teaches a process and apparatus for distributing fluids in a container. Plaintiffs have asserted claims 1-4 of the '318 Patent. The text of claim 1 is relevant to the pending motion:

> 1. An apparatus for radial distribution of fluid into a fluid mass contained in a vessel comprising (a) a vessel containing a fluid mass; (b) disposed within said vessel and within said fluid mass, a centrally disposed fluid riser inlet conduit extending through a wall or floor of said vessel and oriented substantially vertically along the fluid riser inlet conduit's longitudinal axis, said riser inlet conduit having a plurality of fluid conveying arms each of said arms having an end remote from said fluid riser inlet conduit, and each of said arms extending radially and substantially horizontally outward from the vertical axis of said fluid riser inlet conduit and extending radially into the fluid mass wherein the arms have an enclosed length and (c) having along said enclosed length one or more outlet openings at or near the end remote from the fluid riser inlet conduit.

During the claim construction process, Plaintiffs proposed that the term "fluid mass" be construed as "fluid bed." Defendants argued that the term "fluid mass" should be construed as "fluid within the vessel." Both parties agreed to a construction of the term "fluid." In our *Markman* order, we construed the terms "fluid" and "fluid mass" as follows:

CLAIM TERM	COURT'S CONSTRUCTION
"fluid"	a liquid, gas or a mixture of fluidizing gas and finely divided solids maintained in fluidized form by the fluidizing gas
"fluid mass"	Fluid contained within the vessel

Plaintiffs have moved for reconsideration of our construction of the term "fluid mass" and urge us to adopt their proposed construction of "fluid mass" as "fluid bed."

II. LEGAL STANDARD

The Federal Rules of Civil Procedure do not specifically provide for motions for reconsideration. *Shepherd v. Int'l Paper Co.*, 372 F.3d 326, 328 n.1 (5th Cir. 2004). However, Rule 54(b) allows a court to revise an interlocutory order any time prior to the entry of judgment adjudicating all the claims and all the parties' rights and liabilities. "District court *Markman* . . . rulings in patent cases are interlocutory." *Brown v. Baylor Healthcare Sys.*, 2009 U.S. Dist. LEXIS 40333, *7 (S.D. Tex. May 11, 2009) (quoting *Forest Group, Inc. v. Bon Tool Co.*, 2008

U.S. Dist. LEXIS 57134, *4 (S.D. Tex. July 29, 2008)). Motions for reconsideration from interlocutory orders are governed by the standards for Rule 59(e) motions. *Thakkar v. Balasuriya*, 2009 U.S. Dist. LEXIS 82218, *1 (S.D. Tex. Sept. 9, 2009).

A motion under Rule 59(e) must "clearly establish either a manifest error of law or fact or must present newly discovered evidence." *Ross v. Marshall*, 426 F.3d 745, 763 (5th Cir. 2005) (citing *Simon v. United States*, 891 F.2d 1154, 1159 (5th Cir. 1990)). Relief is also appropriate where there has been an intervening change in the controlling law. *See Schiller v. Physicians Resource Group Inc.*, 342 F.3d 563, 567 (5th Cir. 2003). "These motions cannot be used to raise arguments which could, and should, have been made before the judgment issued." *Id.* In considering a motion for reconsideration, a court "must strike the proper balance between two competing imperatives: (1) finality, and (2) the need to render just decisions on the basis of all the facts." *Edward H. Bohlin Co. v. Banning Co.*, 6 F.3d 350, 355 (5th Cir. 1993).

III. ANALYSIS

Plaintiffs contend that the Court's construction of the term "fluid mass" leaves an ambiguity regarding the structural location of "within said vessel and within said fluid mass" and that this ambiguity is a question of law that the Court must decide. Plaintiffs offer several arguments as to why this ambiguity exists and how it could be resolved by adopting Plaintiffs' proposed construction of "fluid mass" as "fluid bed." First, Plaintiffs contend that the Court's construction of the term "fluid mass" would render other terms in the claim 1 redundant. Second, Plaintiffs contend that the Court's construction of "fluid mass" is broad enough to encompass even random air in the atmosphere, which is at odds with the claim language, the specification and the prosecution history. Finally, Plaintiffs request that, at a minimum, the Court clarify that the term "fluid mass" refers to the fluid being distributed from the fluid conveying arms and not

to any fluid, even random air and vapor, that happens to be present in the vessel. We note that none of these arguments is based on an intervening change in controlling law or new evidence not previously available. Rather, the definition of "fluid mass" adopted by the Court was the one offered by Defendants during the claim construction briefing and the definition of "fluid" adopted by the Court was one the parties jointly proposed. (Doc. No. 30 Ex. B.) Shell could have raised in its claim construction briefing all of the arguments it raises now regarding the implications of adopting Defendants' proposed construction of "fluid mass." Therefore, we will grant the motion to reconsider only to the extent that there is a need to correct a clear error of law or to prevent manifest injustice. Each of Plaintiffs' arguments is analyzed below.

A. Redundancy of Court's Construction of "Fluid Mass"

Plaintiffs argue that, under the Court's construction of "fluid mass" as "fluid within the vessel," certain language in claim 1 would be rendered redundant. The pertinent language from claim 1 is the following:

> 1. An apparatus for radial distribution of ***fluid into a fluid mass contained in a vessel*** comprising (a) a vessel containing a ***fluid mass***; (b) disposed ***within said vessel and within said fluid mass***, a centrally disposed fluid riser inlet conduit extending through a wall or floor of said vessel . . . .

Plaintiffs contend that, if "fluid mass" is defined as "fluid within the vessel," then the limitation a "vessel containing a fluid mass" is circular and redundant. The Federal Circuit has instructed courts to avoid construing claims "so as to render physical structures and characteristics specifically described in those claims superfluous." *Haemonetics Corp. v. Baxter Healthcare Corp.*, 607 F.3d 776, 781 (Fed. Cir. 2010) (citing *Bicon, Inc. v. Straumann Co.*, 441 F.3d 945, 950 (Fed. Cir. 2006)). A court must construe claims "with an eye toward giving effect to all of their terms even if it renders the claims inoperable or invalid." *Haemonetics*, 607 F.3d at 776 (omitting internal

citations). Here, construing "fluid mass" as "fluid within the vessel" does not fail to give effect to the term "vessel" in the phrase "a vessel containing a fluid mass." Neither does our construction render the term "vessel" superfluous in the sense that a vessel would be unnecessary to the invention. *See Haemonetics*, 607 F.3d at 776 (district court's construction of term "centrifugal unit" as simply a vessel rather than a vessel and associated tubes rendered the claim's specific reference to tubes superfluous). Rather, this is a situation where we must give effect to the term "fluid mass," but where the claim language itself provides little guidance regarding the meaning of the term "fluid mass." *See Pfizer, Inc. v. Teva Pharms. USA, Inc.*, 429 F.3d 1364, 1373 (Fed. Cir. 2005) ("The claims themselves provide substantial guidance as to the meaning of particular claim terms."). All we can garner from the claim language is that the vessel contains something called a "fluid mass." We cannot ascertain solely by reading the claim language the volume, location, or exact composition of the fluid mass. Certainly the claim language does not use the term "fluid bed" that Plaintiffs contend is the correct definition of the term "fluid mass."

In order to give effect to the claim term "fluid mass," we are required look to the specification for guidance. The pertinent language from the specification states:

> The term "fluid mass" is used herein with reference to the contents of a vessel into which fluid is discharged in accordance with the present invention. Such a vessel may be of any cross-sectional geometry, such as circular, square, and is preferably circular. Suitably a fluid mass is a fluid bed which may therefore be relatively large radial cross-sectional area into which solids may be introduced periodically or continuously and retained for a sufficient residence time to allow extended contact by a treating medium. Preferably the fluid bed comprises the reactor, stripper or regenerator bed of a fluid catalytic cracking unit into which catalytic cracking particles having entrained product gases or bearing carbonaceous deposits from cracking reactions are introduced for removal of product gases or combustion of deposits.

(col. 3 ll.3-17.) The first sentence, we believe, provides the definitional statement from which it is necessary to begin construing the term "fluid mass." Unfortunately, the sentence defines "fluid mass" simply as the contents of a vessel into which the fluid is discharged in accordance with the present invention. It provides no affirmative definition of the fluid mass's contents, location, volume, or other characteristics. The third sentence in the quoted language does provide a definition of "fluid mass" as "fluid bed," but as we stated in our *Markman* order, a fluid bed appears to be only a preferred embodiment of fluid mass. *See Iscar Ltd. v. Sandvik, A.B.*, No. 99-1577, 2000 U.S. App. LEXIS 22189, *6 (Fed. Cir. Aug. 25, 2000) (reference to "suitably planar" in specification was merely reference to preferred embodiment of an asserted claim term). Our interpretation of the phrase "Suitably a fluid mass is a fluid bed" as merely a preferred embodiment is supported by *Astrazeneca AB v. Mut. Pharm. Co.*, 384 F.3d 1333, 1339-40 (Fed. Cir. 2004). In this opinion, the Federal Circuit reviewed the specification's discussion of the claim term "solubilizer" and held that the inventors acted as their own lexicographer when they stated, in the specification, "the solubilizers suitable according to the invention are defined below." *Id.* at 1339. The court rejected the plaintiff's contention that the statement in the specification referred only to a preferred embodiment of "suitable" solubilizers. The court found that the inventors used the phrase "*the solubilizers* suitable for the preparations according to the invention" rather than the phrase "*a solubilizer* suitable for the preparations according to the invention." *Id.* The use of the article "the" in front of "solubilizer" indicated that the inventors had definitively provided the definition of the claim term "solubilizer." The court noted that use of the article "a" in front of "solubilizer" might indicate simply a preferred embodiment, rather than the actual definition of the claim term. Here, we confront language that states "[s]uitably *a fluid mass* is a fluid bed" rather than language stating "suitably *the fluid mass* is a fluid bed." The

former formulation suggests a preferred embodiment, while the latter might have indicated that the inventors of the '318 Patent intended to define "fluid mass" as a "fluid bed."

We believe that the specification provides us with a definition of "fluid mass" that is more closely encapsulated by Defendants' proposed definition of "fluid within a vessel" than Plaintiffs' proposed definition of "fluid bed." We must give effect to the term "fluid mass" in a way that is supported by the specification without limiting the claim term to the preferred embodiment. *See Haemonetics*, 607 F.3d at 776 (omitting internal citations); *SRI Int'l. v. Matsushita Elec. Corp.*, 775 F.2d 1107, 1121 (Fed. Cir. 1985) (en banc) (references to preferred embodiment, such as those often present in specification, are not claim limitations).

Plaintiffs' other challenge to our construction of "fluid mass" is that it renders the claim language requiring the apparatus to be "***within said vessel and within said fluid mass***" redundant and superfluous. Plaintiffs contend that these are two separate and distinct elements, but that our construction fails to make each element meaningful. We disagree. Construing "fluid mass" as "fluid within the vessel" does not lead to the conclusion that the "fluid mass" is coextensive with the vessel. Rather, the plain language of the claim covers both fluid masses that fill an entire vessel and those that do not. For fluid masses that do not fill the entire vessel, the claim language of "within said vessel and within said fluid mass" requires the apparatus to be located not only within the vessel, but also within the fluid mass. We find that our construction of "fluid mass" as "fluid contained within the vessel" does not render the phrase "within said vessel and within said fluid mass" redundant and superfluous.

B. Court's Construction of "fluid mass" as Overbroad

Plaintiffs argue that the Court's construction of the term "fluid mass" is overbroad because it could encompass even random air in the atmosphere. According to Plaintiffs,

Defendants could use the Court's construction to argue that the "fluid mass" could be located anywhere in the vessel that "even air" can be found, including the vapor space. (Doc. No. 96 at 2.) According to Plaintiffs, such an argument would be at odds with the claim language, the specification and the prosecution history.

We first note that nothing in the language of the claims themselves indicates that the "fluid mass" is something separate from "even air" or "vapor space" and does not even refer to the latter two concepts. Other than being contained within the vessel, the exact scope of the term "fluid mass" is left undefined in the claim language.

Next, the specification states that "[t]he term 'fluid mass' is used herein with reference to the contents of a vessel into which fluid is discharged in accordance with the present invention." This definitional statement certainly does not limit "fluid mass" to a "fluid bed" or exclude areas such as "vapor space" from the composition of a "fluid mass." As we discussed above, and extensively in our *Markman* order, the instances in which the term "fluid bed" is used in the specification are all instances indicating that a "fluid bed" is a preferred embodiment of the invention, rather than the only embodiment or the present invention. Therefore, we decline to limit the claim term "fluid mass" to the preferred embodiments described in the specification. *See PSC Computer Prods., Inc. v. Foxconn Int'l*, 355 F.3d 1353, 1357 (Fed. Cir. 2004) (citing *Autogiro Co. of Am. v. United States*, 181 Ct. Cl. 55, 60 (Ct. Cl. 1967) ("Courts can neither broaden nor narrow the claims to give the patentee something different than what he has set forth.")). Although our construction may render the claim "inoperable or invalid," we must accord it full breadth. *See Rhine v. Casio, Inc.*, 183 F.3d 1342, 1345 (Fed. Cir. 1999) (Where "the only claim construction that is consistent with the claim's language and the written description renders the claim invalid, then the axiom does not apply and the claim is simply

invalid."); *Process Control Corp. v. HydReclaim Corp.*, 190 F.3d 1350, 1357 (Fed. Cir. 1999) (district court's attempt to use the written description to circumvent the plain language of the claim and the clear definition of the disputed claim language found therein was inappropriate).

Finally, Plaintiffs rely on the prosecution history of the '318 Patent to demonstrate that they distinguished the present invention from prior art that disclosed the distribution apparatus contained within a "vapor space." A close reading of the prosecution history establishes that Plaintiffs made no such argument. During prosecution, the patent examiner rejected the '318 Patent application as obvious under U.S. Patent No. 4,664,888 to Castagnos ("Castagnos"). Castagnos discloses "an apparatus for rapidly separating catalyst from vapor in the hot, high velocity reactor discharge in a fluid catalytic cracking process." (Doc. No. 96 Ex. A col. 1, ll. 7-9.) The patent examiner viewed the claimed fluid distributor in the '318 Patent as structurally identical to the claimed fluid separator in the Castagnos patent. (Doc. No. 101 Ex. 1 at 3-4.) The patent examiner thought it immaterial that the distributor and separator performed different functions. (*Id.*) In addition, the patent examiner did not think it significant that the '318 Patent's distributor was disposed within the fluid mass, while the Castagnos patent's separator did not specify where it was located. (*Id.*) The patent examiner noted that, in some cases, the location of the Castagnos patent's apparatus would be within the fluid mass depending upon the material to be treated. (*Id.*)

Plaintiffs first objected to and then appealed the patent examiner's rejection. (Doc. No. 101 Ex. 2; Doc. No. 96 Ex. B.) In both filings, Plaintiffs focused upon the different operations of the '318 Patent and the Castagnos patent. Specifically, Plaintiffs characterized the operation of the Castagnos apparatus as separating the catalyst from gaseous products in the effluent of a riser reactor, while the '318 Patent uniformly distributed the catalyst into the reactor. Plaintiffs

pointed to the semicircular arms in the Castagnos patent and the substantially horizontally-oriented arms in the '318 Patent as evidence that the '318 Patent contained a limitation not present in Castagnos. Plaintiffs did not argue in their objection to the patent examiner or in their appeal that a distinguishing characteristic between the '318 Patent and the Castagnos patent was that the former was disposed within the fluid bed while the latter was disposed within the "vapor space." Plaintiffs did not take issue with the patent examiner's statement that the Castagnos apparatus could be located within the fluid mass depending on the material which was to be treated.

The Board of Patent Appeals and Interferences accepted the arguments in Plaintiffs' appeal and reversed the patent examiner's rejection of the '318 Patent. (Doc. No. 96 Ex. C.) In its opinion, the Board noted that the apparatus taught in Castagnos would not meet the limitations of the '318 Patent, which requires that the fluid conveying arms extend substantially horizontally outward from the vertical axis of the fluid riser inlet conduit. (*Id.* at 4.) Substantially horizontal arms would not effect the centrifugal separation of catalyst from cracked product vapor that is taught by the Castagnos patent. (*Id.*) As a result, the Board found that the '318 Patent was not rendered obvious by the Castagnos patent. The Board also noted that the arms of the Castagnos separator extended into vapor space, due to the operation it performed and its specification drawings, and could not extend into fluid mass. (*Id.* at 5.) Finally, the Board recognized that "fluid mass" was an essential part of the '318 Patent's claimed apparatus. (*Id.*)

The prosecution history of the '318 Patent makes clear to us that Plaintiffs distinguished the '318 Patent from the Castagnos patent on the basis of the different functions undertaken by each patent's claimed apparatus. The Board adopted this distinction as the primary basis for its holding. The Board, and not Plaintiffs themselves, made a secondary distinction regarding the

Castagnos patent's apparatus extending into vapor space rather than a fluid mass. *Cf. 3M Innovative Props. Co. v. Avery Dennison Corp*., 350 F.3d 1365, 1373-74 (Fed. Cir. 2003), *cert. denied* 542 U.S. 920 (2004) (prosecution history cannot be used to limit scope of claim unless *applicant* took position before PTO). The Board never examined the concept of "vapor space" in relation to the '318 Patent's apparatus, never suggested that "vapor space" was relevant to the '318 Patent's operation, and certainly did not discuss whether the "fluid mass" could be coextensive with the vessel recited in the '318 Patent. Although "vapor space" was significant to an understanding of the Castagnos patent's operation, we cannot conclude that "vapor space" is a concept that should be imported into our construction of the '318 Patent's claim terms. Rather, we find that the prosecution history, in combination with the claim language and specification, does not indicate that we have made a clear error of law in our prior construction of the term "fluid mass" as "fluid within a vessel."

C. Clarification of Claim Term "fluid mass"

Plaintiffs request that, at a minimum, the Court clarify that the term "fluid mass" refers to "a mass of the distributed fluid contained within the vessel." According to Plaintiffs, this clarification would accomplish two objectives. First, this construction would make clear that the "fluid mass" refers to the fluid being distributed from the fluid conveying arms and does not refer to any fluid, even random air and vapor, that happens to be present in the vessel. Second, the construction would make clear that the claim language "within a vessel" is not coextensive with the claim language "within the fluid mass."

Defendants agree that the fluid mass may be made up, in whole or in part, of the same fluid that is being distributed from the fluid conveying arms of the '318 Patent. However, Defendants disagree with Plaintiffs' contention that the "fluid mass must consist of the identical

fluid that is being distributed." (Doc. No. 101 at 4.) Defendants point to language contained the specification suggesting that the fluid being transported through the fluid conveying arms to the fluid mass may be fluidized by "inert" gases such as air or steam, while the fluid mass itself may be fluidized by combustion gas. Moreover, the fluid in the fluid conveying arms may possess a different density, temperature, or other characteristics than the fluid mass.

The problem with Plaintiffs' proposed clarification is that it appears to limit the term "fluid mass" so that a fluid mass can consist only of the fluid that has been distributed from the fluid conveying arms. Plaintiffs proposed clarification would not allow a "fluid mass" to encompass fluid that may already be present within the vessel and possess a different composition than the fluid within the fluid conveying arms. Such a construction would prevent "fluid mass" from including a fluid bed containing a treating medium, which is a preferred embodiment referred to in the specification. We do not think such a construction is appropriate. *See Hoechst Celanese Corp. v. BP Chems. Ltd.*, 78 F.3d 1575, 1581 (Fed. Cir. 1996) (a claim construction that excludes a preferred embodiment is rarely, if ever, correct). Therefore, we decline to clarify our construction of "fluid mass" in the manner proposed by Plaintiffs.

IV. CONCLUSION

For the foregoing reasons, Plaintiffs'Motion for Reconsideration or in the Alternative Motion for Clarification of the Court's *Markman* Ruling (Doc. No. 96) is **DENIED**. The parties should submit a proposed revised Docket Control Order within ten days of this order.

IT IS SO ORDERED.

SIGNED in Houston, Texas this the 15th day of August, 2011.

KEITH P. ELLISON
UNITED STATES DISTRICT JUDGE